

DOCKET: CU-4094

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

APPLICANT: Hiroyuki Takamura

TITLE: HIGH-PRECISION SINTERED CAM LOBE PARTS

**AMENDED CLAIMS**

1. (original) A high-precision sintered cam lobe part obtained by subjecting a sintering powder to compression-molding and sintering one time only or two or more times repetitively to make the powder into a predetermined form and by carrying out thermal refining of the resulting body as required, wherein the cam lobe part is made of an iron-based sintered alloy comprising one or both of 0.3 to 5.0% by weight of Ni and 0.2 to 4.0% by weight of Cu, 0.5 to 1.2% by weight of C and unavoidable impurities, which is balanced with Fe, and has a density of  $7.3 \text{ g/cm}^3$  or more, the hardness of the outer periphery of the cam lobe of 45 HRC or more and the rate of dimensional change from the molded body obtained in the final compressing process to the sintered body obtained in the final sintering process within  $\pm 0.5\%$ .
2. (original) A high-precision sintered cam lobe part according to Claim 1, containing both of said Ni and said Cu.
3. (original) A high-precision sintered cam lobe part according to Claim 2, which further contains 0.1 to 2.5% by weight of Mo.
4. (original) A method of producing a high-precision sintered cam lobe part, comprising steps of: subjecting a sintered body to quench-temper treatment in which the sintered body is formed into a predetermined shape by repeating compression and sintering once or two or more times using a sintering powder prepared so as to have the following final composition; and producing a sintered cam lobe part which is made of an iron-based sintered alloy having a final composition comprising one or both of 0.3 to 5.0% by weight of Ni and 0.2 to 4.0% by weight of Cu, 0.5 to 1.2% by

weight of C and unavoidable impurities, which is balanced with Fe, and in which the density is  $7.3 \text{ g/cm}^3$  or more, the hardness of the outer periphery of the cam lobe is 45 HRC or more, and the rate of dimensional change from the molded body obtained in the final compressing process to the sintered body obtained in the final sintering process is within  $\pm 0.5\%$ .

5. (original) A method of producing a high-precision sintered cam lobe part according to Claim 4, wherein the compressing and sintering process is carried out two or more times.

6. (currently amended) A method of producing a high-precision sintered cam lobe part according to Claim 4 ~~or 5~~, wherein the outer periphery of the cam piece is processed by shotblasting after the quench-temper treatment.

7. (currently amended) A method of producing a high-precision sintered cam lobe part according to ~~any of Claims 4 to 6~~ Claim 4, wherein the final composition contains both of said Ni and said Cu.

8. (original) A method of producing a high-precision sintered cam lobe part according to Claim 7, wherein the final composition further contains 0.1 to 2.5% by weight of Mo.